

Mainstreaming of Climate Risks and Opportunities in the Financial Sector

Climate Change Risk Reporting in the Annual Reports of the European Automobile Industry

2nd Edition - Covering Reports 2007

Axel Hesse

on behalf of Germanwatch



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Summary

This paper is a follow-up study that analyses and evaluates the audited parts of the management reports / annual reports **2007** of major European automobile companies. Main focus is the analysis and evaluation of appropriate reporting of climate change related risks and uncertainties. The annual reports were analysed with respect to whether they meet the requirements of the Directive 78/660/EEC and whether financial and non-financial key performance indicators relevant to particular businesses were included. It takes only into account the parts which were audited by accountants.

The information provided by the annual reports was evaluated by the author with ratings from [1] (very useful for investors) to [6] (not useful at all for investors).

The evaluation has shown that the information provided in the annual reports 2007 is still not sufficient for analysts and investors to fully evaluate the financial and non-financial risks and opportunities caused by climate change impacts on the automobile industry sector. The average quality of reporting increased by marginal 0.4 evaluation points in comparison to the 2006 reports. In comparison the results of this year's study indicate that German companies still report worst regarding the key performance indicator "fuel consumption", while PSA Peugeot Citroën and Renault again received the best ratings in comparison.

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1. Introduction

Just like the first survey the intention of this years follow-up study is to analyse and evaluate the management reports / annual reports 2007 – only the parts which were audited by accountants – of the European automobile industry concerning appropriate reporting of climate change related risks and uncertainties.

An interesting statement by Fiat emphasizes the new role of sustainability impacts in financial disclosure: “This awareness, and the sense of responsibility it brings, brought about the need for greater transparency on issues such as the environmental and social impact of our work that did not in the past find space in financial disclosures. This is a whole new culture. By fostering it, we are setting a virtuous circle in motion, because acknowledging and accepting responsibility inspires others to shoulder it too. And this is one of the ways that Fiat interprets its corporate social responsibility.”¹

The following management reports / annual reports have again been taken into account:

Analysed documents in Germany:

- BMW Group - Annual Report 2007,
- Daimler - Annual Report 2007,
- Porsche - Annual Report 2006/07,
- Volkswagen - Annual Report 2007.

Analysed documents in France:

- PSA Peugeot Citroën - 2007 Registration Document,
- Renault - 2007 Registration Document.

Analysed documents in Italy:

- Fiat - Annual Report Consolidated and Statutory Financial Statements at December 31, 2007 – short form: Fiat - Annual Report 2007.

The reports were analysed on whether they meet the requirements of the Directive 78/660/EEC, which was amended by the “Modernisation Directive” 2003/51/EC, as follows:

“The annual report shall include at least a fair review of the development and performance of the company's business and of its position, together with a description of the principal risks and uncertainties that it faces.

The review shall be a balanced and comprehensive analysis of the development and performance of the company's business and of its position, consistent with the size and complexity of the business;

To the extent necessary for an understanding of the company's development, performance or position, the analysis shall include both financial and, where appropriate, non-financial key performance indicators relevant to the particular business, **including information relating to environmental and employee matters**; [...].”

¹ Fiat: Annual Report 2007, p. 21.

Investors and analysts want automobile companies to report especially on two non-financial key performance indicators:

- fleet consumption (see 2.2),
- energy and greenhouse gas intensity of the production² (see 2.3).

The conversion into German law was carried out through the “BilReG” act at the end of 2004. §§ 289, 315 HGB (German Commercial Code) were changed. This change was enforced within the annual reports of 2005, which include the management reports (“Lageberichte”)³.

² See Hesse, A., Deloitte (ed.): Sustained added value. Information demand of investors and analysts for sector-specific “Sustainable Development Key Performance Indicators” (SD-KPIs) in Management Commentaries (MCs) of Germany companies, Düsseldorf, Munich 2007, pp. 7-9.

³ See Hesse, A., Deloitte (ed.): Added value, long term. Non-financial sustainability key performance indicators on their way into financial reports of German companies, Düsseldorf, Munich 2006, pp. 5-6.

2. Analysed and evaluated details

The following elements have been analysed and evaluated in detail. The leading question of the analysis was to what extent the companies report concerning the following Sustainable Development Key Performance Indicators (SD-KPIs):

2.2 SD-KPI 1⁴: fleet consumption

- 2.2.1 Sales-weighted average fleet consumption
- 2.2.2 Opportunities and risks of regulative measures regarding the fleet consumption for the whole company
- 2.2.3 Opportunities and risks of oil price changes and impacts on purchase decisions of consumers
- 2.2.4 Risk management reporting about environmental complaints including legal proceedings
- 2.2.5 Reporting about lobbying activities regarding reductions in fuel consumption and/or further measures in climate change policies/regulations at EU level, in other important markets or at a global level

2.3 SD-KPI 2: Energy and greenhouse gas intensity of the production – opportunities and risks regarding necessary changes in the production

The author evaluated the information of the annual reports of the European automobile industry with ratings from [1] (very useful for investors) to [6] (not useful at all for investors).

To illustrate the content of the annual reports regarding the above mentioned questions, the survey cites the most important relevant sections of the reports. The following tables show a summary of the results of the authors' evaluation for the annual reports of 2007 and the results for the 2006 reports in brackets⁵. The average quality of reporting increased by 0,4 evaluation points in comparison to the 2006.

⁴ Sustainable Development - Key Performance Indicator 1

⁵ For further details regarding the results of 2006 see Hesse, A.: Climate Change Risk Reporting in the Annual Reports 2006 of the European Automobile Industry. Germanwatch (ed.), Bonn, 2007.

2.1. Evaluation overview for annual reports 2007 (2006)

SD-KPI 1: Fleet Consumption 2007 (2006)

	BMW	Daimler	Fiat	PSA	Porsche	Renault	VW
sales-weighted average fleet-consumption	6 (6)	6 (6)	6 (6)	4 (6)	6 (6)	5 (6)	6 (6)
opportunities and risks of regulative measures regarding the fleet consumption for the whole company	4 (5)	3 (4)	4 (4)	3 (3)	5 (6)	2 (2)	4 (4)
opportunities and risks of oil price changes and impacts on purchase decisions of consumers	4 (4)	3 (3)	6 (6)	5 (6)	6 (4)	4 (5)	2 (3)
reporting about environmental complaints including legal proceedings	6 (6)	5 (5)	6 (6)	4 (4)	6 (6)	4 (6)	4 (6)
reporting about lobbying activities regarding reductions in fuel consumption and/or further measures in climate change policies/regulations at EU level, in other important markets or at a global level	3 (4)	6 (5)	6 (5)	6 (5)	6 (6)	2 (3)	6 (5)

1 = very useful for investors, 6 = not useful at all for investors

SD-KPI 2: Energy and Greenhouse Gas Intensity of the Production 2007 (2006)

	BMW	Daimler	Fiat	PSA	Porsche	Renault	VW
opportunities and risks regarding necessary changes in the production	3 (3)	4 (6)	5 (5)	3 (3)	6 (5)	2 (3)	5 (4)

1 = very useful for investors, 6 = not useful at all for investors

	BMW	Daimler	Fiat	PSA	Porsche	Renault	VW
Accountant	KPMG	KPMG	Deloitte	PWC	E & Y	Deloitte, E&Y	PWC

2.2. Fleet consumption

2.2.1. Sales-weighted average fleet consumption (SD-KPI 1)

As in 2006, the by far most important Sustainable Development Key Performance Indicator (SD-KPI 1) for the automobile industry⁶, the sales-weighted average fleet consumption for 2007 (e.g. in g CO₂/km for the EU/worldwide, respectively miles per gallon for the USA), is again not included in six out of the seven analysed annual reports of the European automobile industries and therefore not directly available for investors and analysts.

Five of the analysed companies did not report anything on this aggregated SD-KPI 1.

[Evaluation: 6]

PSA is the only European automobile company, which reports on SD-KPI 1, the sales-weighted average fleet consumption, however so far only for its most important home market France: “In addition, in 2007, PSA Peugeot Citroën once again had France’s lowest corporate average CO₂ emissions, with 140g/km per vehicle sold in the country. The ranking was prepared by France’s Agency for the Environment and Energy Management (ADEME).”⁷

Twice in the report one can find – not exhaustive – models of PSA, which were selected on the basis of their sales (“best-selling”) and environmental performance (“most fuel-efficient”), however the absolute sales-volume is not stated. For each model, the table shows data for the gasoline and diesel versions offering the lowest CO₂ emissions and fuel consumption. In certain cases, the best selling model is also the most fuel-efficient⁸

[4]

⁶ Cf. Hesse, A., Deloitte (ed.): Sustained added value. Information demand of investors and analysts for sector-specific “Sustainable Development Key Performance Indicators” (SD-KPIs) in Management Commentaries (MCs) of Germany companies, Düsseldorf, Munich 2007, pp. 7-9.

⁷ PSA Peugeot Citroën: 2007 Registration Document, pp. 100.

⁸ Cf. PSA Peugeot Citroën: 2007 Registration Document, pp. 106-107.

In **Renault's** graph one can easily see why the CO₂ emissions from the vehicle - use - phase belong to SD-KPI 1 regarding the climate change potential:

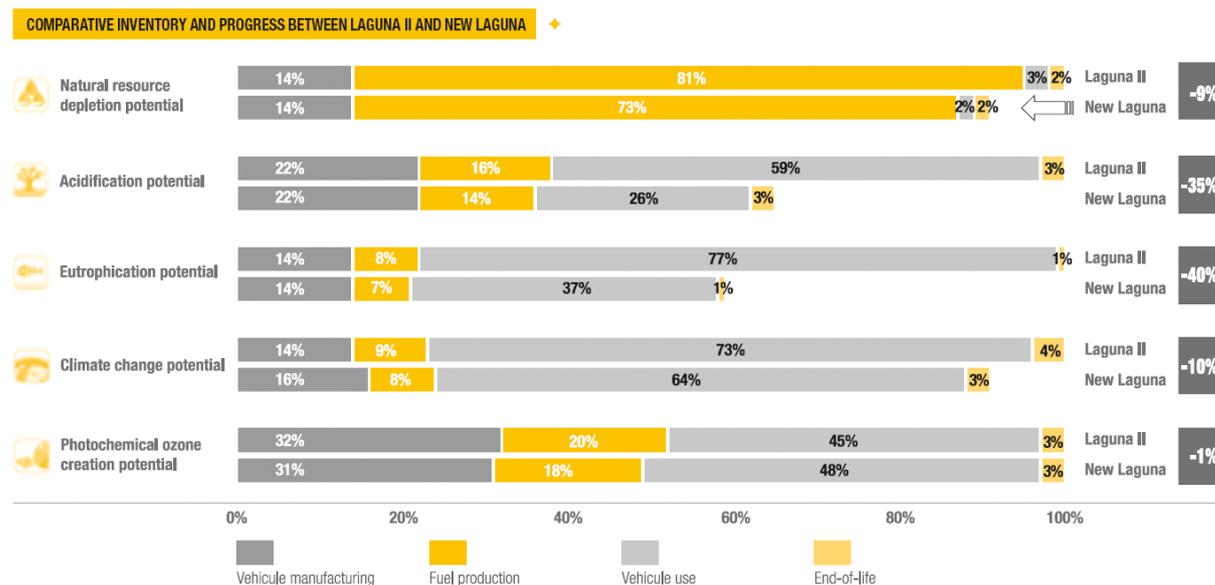


Figure 1: Comparative inventory and progress between Laguna II and new Laguna. Source: Renault: 2007 Registration Document.

Renault explains: “The life-cycle analysis makes it easier to decide on the best trade-off between environmental impacts that are often contradictory and where a compromise has to be found: for example, between CO₂ and pollutant emissions or safety and weight, or – in the process chain – between the ELV phase and manufacturing by suppliers. Renault has gone further by including an indicator that combines the lifecycle analysis for each technology and alternative energy with their economic characteristics (technology cost, fuel prices, tax aspects, etc.). Renault’s objective is to develop ecological solutions that can be widely implemented for an immediate and significant impact on the environment. Criteria of ecological and economical efficiency must therefore be taken into account. This “cost per ton of CO₂ avoided” is the criterion used to measure this efficiency and rank the alternative solutions. Through this comprehensive vision of the full life cycle, Renault and the Renault-Nissan Alliance are able to work on a broad range of technologies (hybrids, fuel cells, electric vehicles) as well as on the potential of alternative fuels, including compressed natural gas (CNG), liquefied petroleum gas (LPG) and biofuels (existing and future). These solutions will be applied to Renault’s vehicles when there is market demand for them, taking into account local resources.”⁹

However, Renault does not report on the aggregated SD-KPI 1 in absolute measures (cf. also 2.2.2) [5].

⁹ Renault: 2007 Registration Document, p. 95.

2.2.2. Opportunities and risks of regulative measures regarding the fleet consumption for the whole company

The **BMW** Group states that they are aware of their responsibility in the area of climate protection and therefore have been working for many years on reducing the fuel consumption of their fleet. The strategy of working towards sustainable mobility comprises three main stages¹⁰. However, only relative reductions in the fleet consumption are stated: The status report produced for each vehicle project provides clear and transparent information on fuel consumption and CO₂ emissions. The report mentions the agreement between the European Automobile Manufacturers (ACEA) and the European Commission of a 140 g/km target for CO₂ emissions for the combined new car fleet of all European car manufacturers for 2008. This represents a relative reduction of 25 % compared to the base year, 1995. The BMW Group is also making its relative contribution and stands by its commitment to reduce CO₂ emissions for its own fleet by 25 % during the period from 1995 to 2008. The BMW Group has also cut back CO₂ emissions relatively outside Europe in recent years, e.g. in the U.S. BMW takes a top position in relative terms during the period from 1990 to 2005¹¹. About 40 % of the BMW Group's new vehicles in Europe will be emitting a maximum of 140 g CO₂/km¹²; however the 100% level, SD-KPI 1, is not mentioned.

Development of CO₂ emissions of BMW Group cars in Europe (EU-15)

(Index: 1995 = 100; Basis: fleet consumption of newly registered cars in Europe (EU-15) measured on the basis of the New European Driving Cycle in accordance with the ACEA commitment)

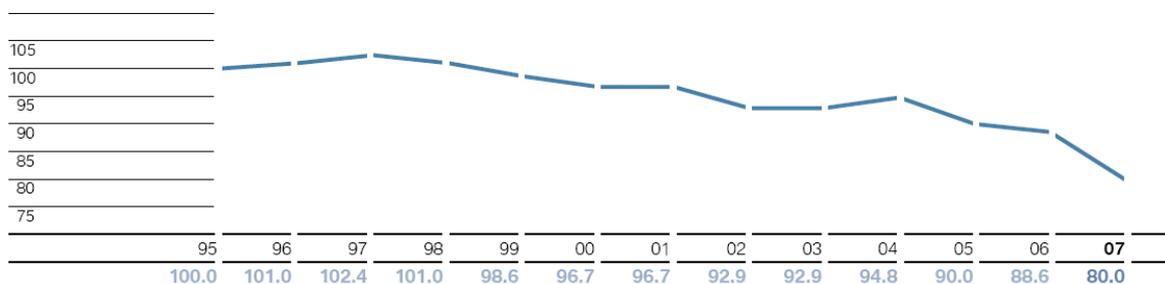


Figure 2: BMW - Development of CO₂ emissions in EU-15. Source: BMW Group: Annual Report 2007.

In the outlook section BMW roughly describes possible consequences for the case that its highly-weighted premium segment gets under pressure due to its high fuel consumption. A small improvement in comparison to BMW's 2006 report: "The proposed rules for CO₂ emissions and fuel economy could have a materially adverse effect on the business development of the Automobiles segment and consequently on the Group's earnings performance"¹³. [4]

¹⁰ Cf. BMW Group: Annual Report 2007, p. 32.

¹¹ Cf. BMW Group: Annual Report 2007, p. 32.

¹² Cf. BMW Group: Annual Report 2007, pp. 33-35.

¹³ BMW Group: Annual Report 2007, p. 64.

Daimler states in the section “strategy” of its management report the following without mentioning regulative measures: “Our research and development work in the coming years will focus on developing environmentally friendly alternative drive systems. In addition to optimizing conventional drive systems, we are working on various alternative systems such as hybrid drive, fuel-cell drive, and so-called “DIESOTTO” engines, which are designed to combine the economy of diesel engines with the low emissions of modern gasoline engines. Not only are we the undisputed global market leader for hybrid buses, but with more than 100 vehicles, we have the world’s biggest fleet of fuel-cell vehicles in use. Our involvement as majority shareholder of the newly founded “Automotive Fuel Cell Cooperation” shows the importance we place on extending our expertise in this area. As early as the year 2010, we intend to start production of fuel-cell vehicles with a small series of the B-Class.”¹⁴

“In November 2007, Daimler AG acquired a majority interest in the newly founded Automotive Fuel Cell Cooperation. Acquiring a majority interest in this company is a logical step to take so that we can improve our expertise in this key technology for the future of emission-free mobility and can further strengthen our leading position in the area of fuel cells. Ballard Power Systems Inc. will transfer its automotive division into the new company, so that it can focus on stationary applications of fuel cells in the future. With an equity stake of 50.1%, Daimler will take over the industrial leadership of the Automotive Fuel Cell Cooperation. Ford holds 30% and Ballard holds the remaining 19.9%. Ballard will transfer to the new company both its staff in the area of research and development as well as its complete intellectual property and expertise in automotive fuel-cell applications. With 150 highly specialized employees and numerous patents, the newly founded company is a leader for automotive fuel-cell applications.”¹⁵

In the section “automotive markets” Daimler describes that with the exceptions of Japan and the United States, where stricter emission regulations led to significant drops in sales, the global market for commercial vehicles was in good shape (around +5%)¹⁶. “The world’s major markets for commercial vehicles developed disparately in 2007. In North America, manufacturers were confronted with a massive decline in demand for trucks (minus 32%). On the one hand, this was primarily due to the cyclical weakening of demand for investment goods. On the other hand, the new EPA07 emission regulations that came into force in the United States on January 1, 2007 had led to purchases being brought forward to the year 2006. Sales of commercial vehicles slumped by about 25% in Japan, also mainly as a result of stricter emission standards.”¹⁷

Daimler’s expenditures for research and development increased significantly to €4.1 billion in 2007 (2006: €3.7 billion). This figure includes expenditure to secure very high safety standards and for the further development of alternative drive systems, fuel-cell technology and battery technology¹⁸. “A key area for Daimler’s research and development activities in 2007 was once again the ongoing development of conventional

¹⁴ Daimler: Annual Report 2007, p. 37.

¹⁵ Daimler: Annual Report 2007, p. 39.

¹⁶ Cf. Daimler: Annual Report 2007, p. 40.

¹⁷ Daimler: Annual Report 2007, p. 41.

¹⁸ Cf. Daimler: Annual Report 2007, p. 56.

drive technologies to achieve engines that are even cleaner and more fuel efficient. In order to reduce CO₂ emissions even further and to be able to offer vehicles that are compatible with future requirements over the long term, we are also working on alternative drive systems such as fuel cells, battery and electric vehicles and lightweight construction methods. [...] Daimler spent a total of €1.8 billion on environmental protection in 2007 (2006: €1.6 billion). Our prime goal in this area is to make mobility sustainable for the future. We therefore permanently work on improving our products' environmental compatibility, further reducing the fuel consumption and emissions of our gasoline and diesel engines, and developing alternative drive systems. We apply environmentally friendly production methods and promote the improvement of fossil fuels and the development and use of regenerative fuels.”¹⁹

Nevertheless, no absolute level of the fleet consumption like SD-KPI 1 is mentioned, only relative measures: “The CO₂ emissions of our passenger cars sold in Europe have fallen by approximately 22% since 1995 - a reduction that is nearly 50% higher than the average for European manufacturers. In Germany, we have reduced the fleet consumption of our passenger cars by around 32% since 1990.”²⁰

Regarding capital expenditures Daimler reports the following: “At Mercedes-Benz Cars, investment in property, plant and equipment significantly increased by 12% to €1.9 billion in 2007. The division's main capital expenditure was for the C-Class – including the new compact GLK sport utility vehicle, the next model series of the E-Class, and engine projects for the reduction of fuel consumption and emissions. Daimler Trucks invested primarily in projects for the global harmonization and standardization of engines and major components and for the fulfilment of stricter emission regulations.”²¹

Daimler evaluates qualitatively that legal and political frameworks have a considerable impact on its future business success: “Regulations concerning vehicles' exhaust emissions, fuel consumption and safety play a particularly important role. Complying with these varied and often diverging regulations all over the world requires considerable efforts on the part of the automotive industry. We expect to have to significantly increase our spending aimed at fulfilling these requirements in the future. Many countries have already implemented stricter regulations to reduce vehicles' emissions and fuel consumption, or are about to pass such legislation. This also applies to the European regulations on exhaust emissions and fuel consumption. The European Commission is currently working on a draft directive that, among other things, specifies reduced limits on vehicles' emissions of carbon dioxide as of 2012. Non-compliance with these limits could lead to penalty payments. The Group monitors these factors and attempts to anticipate foreseeable requirements during the phase of product development.”²²

In its outlook Daimler evaluates that the industry's key challenges in the coming years will be to fulfil future statutory emission limits and to expand product ranges with fuel-efficient and environmentally friendly vehicles. Automobile manufacturers will therefore

¹⁹ Daimler: Annual Report 2007, p. 56.

²⁰ Daimler: Annual Report 2007, p. 57.

²¹ Daimler: Annual Report 2007, p. 62.

²² Daimler: Annual Report 2007, p. 70.

intensify their efforts to secure sustainable mobility in the coming years. This will increase the need for producers to cooperate and, as a consequence, the concentration of the industry will continue. At the same time, the ability to differentiate oneself from the competition through innovation and strong brands will become more important as a factor for success.²³

Daimler also mentions opportunities regarding the introduction of new and stricter emission limits for trucks in the year 2010. This “is likely to lead to advance-purchase effects in 2009, strengthening the cyclical upward trend of the US market in 2009. Daimler Trucks has the advantage of an extremely competitive product range. This includes in particular our economical and environmentally friendly trucks with BLUETEC technology for the European markets [...]. Furthermore, we intend to effectively continue the development of our range of fuel-efficient and low-emission drive systems, thus utilizing additional growth potential.”²⁴

For Mercedes-Benz cars, related expenses to technologies that will make products more environmentally friendly will have a negative impact on the earnings trend. Daimler expects, however, to compensate these negative effects through the market success of its products and further efficiency improvements, allowing to achieve a return on sales of 10% on average by the year 2010 at the latest.²⁵

Finally, Daimler states in the outlook for its research and development: “Daimler has planned substantial amounts in the research budget for new technologies with which we intend to achieve a sustained improvement in the safety, environmental compatibility and economy of road traffic. A key focus in this respect is to continue reducing the CO₂ emissions of our entire range of passenger cars and commercial vehicles.”²⁶ [3]

Concerning the powertrain research and technology of **Fiat** the major objective is to develop and apply innovative technologies for improving powerplant performance, cutting engine and vehicle emissions, and boosting fuel savings.²⁷ “Since extensive use of pure hydrogen as an energy carrier fuel will probably not be possible for another 15 to 20 years, a technology for using natural gas/hydrogen blends in internal combustion engines has been developed with an eye to ensuring hydrogen’s economically sustainable introduction.”²⁸

For the trucks and commercial vehicles segment – Iveco – Fiat states that the demand for medium vehicles (GVW of between 6.1 and 15.9 tons) contracted (-5.3%) from 2006, which was characterized by a particularly high rate of vehicle registrations in view of introduction of the digital tachograph and the new emissions regulations applicable to these vehicles.²⁹ Product innovation focuses on six strategic areas: new generation

²³ Cf. Daimler: Annual Report 2007, p. 75.

²⁴ Daimler: Annual Report 2007, p. 76.

²⁵ Cf. Daimler: Annual Report 2007, p. 77.

²⁶ Daimler: Annual Report 2007, p. 79.

²⁷ Cf. Fiat: Annual Report 2007, p. 22.

²⁸ Fiat: Annual Report 2007, p. 23.

²⁹ Cf. Fiat: Annual Report 2007, p. 76.

vehicles, **best-in-class fuel consumption**, cabin interiors with a high standard of perceived quality, vehicle frame solutions at optimised costs, excellence in preventive safety, and evolution in online functions.³⁰

Regarding powertrain innovations and products Fiat states: “In order to improve quality, boost performance, reduce emissions and ensure better fuel economy, during the next year work will continue on the development of the next generation Multijet common rail engine, the relaunch of the Fire engine family through the extension of its range, and development of new diesel and spark ignition engines. During 2007, substantial resources were channelled into developing powerplants with lower exhaust emissions than ever before. Focusing on meeting future Euro 5 and Euro 6 emissions regulations, these development programs will make it possible for FPT to put new Euro 5-compliant engines into production early in 2008, well before the European Union’s new emissions limits come into effect.”³¹ [4]

PSA Peugeot Citroën (PSA) reports in its section “Strategic Strengths and Priorities”: “To meet the challenges of its business environment and continue to drive sustained, profitable sales growth around the world, PSA Peugeot Citroën is backed by solid industry-leading expertise in mission-critical automotive technologies. We are the world’s largest manufacturer of diesel engines and still the market leader in environmentally friendly cars. In 2007, for example, we sold more than one million vehicles (3,428,400 vehicles sold by the Group³²) emitting less than 140 grams of CO₂ per kilometer, while more than 2.4 million cars equipped with our diesel particulate filter have been sold since the major innovation was introduced in 2000. [...] Our ambition for 2015 is to become sustainably the most competitive automaker in Europe, with undisputed leadership in fuel-efficient cars and a strong profitable presence in global markets.”³³

PSA is “leading the market for fuel-efficient, low-emission vehicles. Having made considerable progress in reducing pollutant emissions, the Group has now set a priority objective of reducing the amount of CO₂ emitted by Peugeot and Citroën vehicles. This commitment has already delivered significant results. In 2007, for the second year in a row, PSA Peugeot Citroën sold one million vehicles emitting less than 140 grams of CO₂ per kilometer in Europe, of which 750,000 emit less than 130 grams and 500,000 less than 120 grams. This makes the Group Europe’s leading manufacturer of environmentally friendly cars. [...]”

“PSA Peugeot Citroën is also committed to abating the greenhouse effect, by developing new technologies that improve fuel efficiency and reduce emissions. As part of this process, it is improving internal combustion engines and actively promoting the use of biofuels, natural gas and other alternative energy sources, while also exploring future-facing technologies like diesel-electric hybrids and hydrogen fuel cells. But to

³⁰ Cf. Fiat: Annual Report 2007, p. 78.

³¹ Fiat: Annual Report 2007, p. 81.

³² PSA Peugeot Citroën: 2007 Registration Document, pp. 40.

³³ PSA Peugeot Citroën: 2007 Registration Document, pp. 10-11.

significantly reduce overall emissions of CO₂ - the only way to make a real impact on the environment - the Group is focusing on technologies that can be deployed on mass-produced models. To extend its research beyond the realm of cars, PSA Peugeot Citroën is also investing in major environmental and scientific initiatives, such as the Peugeot carbon sink project in Brazil created in partnership with France's national forest service ONF. At the same time, the Group is committed to designing all of its vehicles for disassembly and recycling. [...] Introduced by PSA Peugeot Citroën, the common-rail, direct injection HDi diesel engines reduce CO₂ emissions by 20% compared with the previous generation diesels and by 30% compared with gasoline engines. In addition to their environmental benefits, HDi engines also deliver remarkable drivability and today rank among the most popular in Europe. In fact, the percentage of diesel-powered passenger cars in the European market almost doubled from 1998 to 2007, when they accounted for nearly 60% of all cars sold during the year. PSA Peugeot Citroën manufactured more than 1.45 million cars equipped with common-rail HDi powerplants in 2007, bringing total output to more than 10.7 million units since 1998. The Group is also pursuing its commitment to downsizing, to develop smaller, more fuel-efficient engines that deliver the same performance as the preceding larger models. This strategy has driven a 10% improvement in fuel efficiency while maintaining the same torque and power output.”³⁴

Yet, nothing has been reported regarding regulative measures. [3]

Porsche reports just for the Cayenne and Panamera series and not at all about regulative measures in its management report. “Despite this, unit sales in the reporting year reached 33,943 units, thus virtually matching the prior-year figure of 34,134 vehicles. This is proof of the excellent customer response to the new Cayenne with lower consumption engines.”³⁵ “In Germany [...] the Cayenne vehicles also did well despite the model change, staying 1.9 percent under the prior-year figure at 3,443 units. This shows just how strong the appeal of the new generation with reduced consumption engines is on the customers.”³⁶

“Expenditure on the hybrid drive, which has been brought forward and accelerated in light of the intense climate discussion, was a significant cost factor. This especially environmentally-friendly hybrid drive will be fitted in the Cayenne and Panamera series.”³⁷

The risk management section of Porsche reads: “Another risk that could negatively impact on unit sales is the CO₂ debate and the pressure to reduce vehicle consumption. However, since Porsche has increased its efforts in the development of consumption-reduced drives, a potential change in purchasing patterns may also harbor new sales

³⁴ PSA Peugeot Citroën: 2007 Registration Document, pp. 100.

³⁵ Porsche: Annual Report 2006/2007, p. 17.

³⁶ Porsche: Annual Report 2006/2007, p. 18.

³⁷ Porsche: Annual Report 2006/2007, p. 18.

opportunities. Porsche is, for example, working on a hybrid drive that is to be installed in the Cayenne and Panamera series.”³⁸. [5]

Concerning opportunities and risks of regulative measures **Renault**’s reporting stands out as one of the “**highlights**” in 2007: “In May, Renault launched the eco² label for its most ecological and economical vehicles. Eco² vehicles are produced in certified plants and emit less than 140 g of CO₂ per km or run on biofuel. They also include at least 5% recycled plastics, and are 95% recyclable.”³⁹

In the presentation of Renault’s Group one can read that for the powertrain range “in 2007 environmental issues take center stage”: With its range of high-performance powertrains, Renault already ranks among the leaders for efficient fuel consumption and CO₂ emissions. The TCE 100 engine launched in May 2007 on Clio, Twingo and Modus, is a perfect illustration of Renault’s expertise. Developed using downsizing technology, this gasoline powerplant combines the power of a 1.4 l engine with the torque of a 1.6 l engine, alongside the fuel consumption characteristics of a 1.2 l engine. Emitting 140 g/km of CO₂, and consuming 5.9 l/100 km on a combined cycle, this engine is one of the most efficient on the market. This expertise also applies to diesel powertrains. With the 105 hp 1.5 dCi engine and particulate filter, Mégane emits just 120g/km of CO₂. This same engine (with horsepower increased to 110 hp) makes New Laguna the market leader in terms of environmental performance. With emissions at a record low of 136g/km of CO₂ on a combined cycle, New Laguna 110 hp carries the Renault eco² label. The press has acclaimed its performance. In Europe, Renault was one of the few vehicle manufacturers in 2007 to bring out a double biofuel offering of vehicles compatible with bioethanol and biodiesel. In June 2007, the 105 hp Mégane 1.6 16v. compatible with E85 bioethanol, arrived on the market. This was Renault’s first venture into bioethanol in Europe, whereas in Brazil it has been marketing Clio and Mégane models that burn E100 since 2004. At end-2006, Renault launched 90 hp and 115 hp versions of Trafic 2.0 dCi and 100 hp and 120 hp versions of Master 2.5 dCi, both compatible with B30 biodiesel, for companies with their own vehicle fleets. The first passenger cars running on biodiesel will arrive on the market in 2008. New Twingo, for example, will be available with the 65 hp 1.5 dCi engine, compatible with B30 biodiesel. In terms of emission control, the 2.0 dCi engine also available on New Laguna already satisfies the Euro 5 emission standard, which comes into force in 2009.”⁴⁰

Regarding the Renault-Nissan-alliance the following has been reported: “As part of Renault Commitment 2009, the company is pursuing an environmental plan to reduce greenhouse gas emissions. This plan is based on three commitments: to be one of the world’s top three carmakers for low level emissions of CO₂, to offer a range of models powered by biofuels such as bioethanol and biodiesel, and to develop a wide range of technologies, including electric power, that are affordable for customers. In December 2006, Nissan introduced Nissan Green Program 2010, a new mid-term environmental

³⁸ Porsche: Annual Report 2006/2007, pp. 21-22.

³⁹ Renault: 2007 Registration Document, p. 8.

⁴⁰ Renault: 2007 Registration Document, p. 12.

action plan. Nissan is focused on three core areas related to the environment: 1. Reducing CO₂ emissions, both from products as well as from day-to-day corporate activities, 2. Reducing exhaust emissions, and 3. Accelerating recycling efforts. In order to realize these different yet complementary programs, the Alliance is prepared to invest across a wide range of technologies, including Electric Vehicles (EV), Fuel Cell, Hybrid technologies and improvement of current diesel/gasoline engines or transmissions. Taking an example for EV, Renault is leading the development of electric powertrain and Nissan is taking the lead in battery development, aiming for introduction in the next decade.”⁴¹

In April 2007 Nissan and NEC Corporation signed an agreement to establish a joint-venture company – Automotive Energy Supply Corporation (AESC) – to focus on lithium-ion battery business for wide-scale automotive application by 2009. Nissan and NEC Group will invest ¥490 million (approx. €3 million) in the partnership. The new joint venture will become the leading company in mass production of lithium-ion batteries for the global automotive community using pioneering technologies developed by Nissan and NEC Group.⁴²

Renault’s Logan, which is locally manufactured in Brazil, made a successful debut on the market in July 2007 and posted sales of 14,600 units. Logan is offered with bioethanol engines, which are a must on the Brazilian market.⁴³

Regarding the “Renault commitment 2009” it is reported that: “new technologies designed to reconcile performance, safety and preservation of the environment were developed. New engines were added to the powertrain range, which have become benchmarks in their segments in terms of fuel efficiency, like the 2.0-liter dCi, the 1.2-liter 100 hp turbo or the dCi 110 hp, which enables New Laguna to emit just 130 grams of carbon dioxide per kilometer. Thanks to the optimization of existing engines, 48% of Renault vehicles sold in Europe in 2007 emit less than 140 grams of carbon dioxide per kilometer. Lastly, Renault leadership in the field of safety was confirmed with nine cars that have been awarded the maximum 5-star rating in the Euro NCAP tests.”⁴⁴

Research & Development spending also addresses the challenges facing the automotive industry, notably with regard to the road safety and environmental issues to which Renault is “deeply committed”⁴⁵.

“The Renault [T] (“square T”) technology plan, launched in 2005, consists of prioritizing and scaling research and advanced technology activities so that they are consistent with the strategic priorities of Renault Commitment 2009 in four main areas: safety; CO₂ and the environment; travelling comfort; dynamic performance.”⁴⁶

In regard to environmental activities Renault explains its management in detail: “Renault is already one of Europe’s top three manufacturers in terms of fuel consumption and CO₂

⁴¹ Renault: 2007 Registration Document, p. 32.

⁴² Cf. Renault: 2007 Registration Document, p. 36.

⁴³ Cf. Renault: 2007 Registration Document, p. 47.

⁴⁴ Renault: 2007 Registration Document, p. 61.

⁴⁵ Cf. Renault: 2007 Registration Document, p. 62.

⁴⁶ Renault: 2007 Registration Document, p. 63.

emissions. Reducing emissions of greenhouse gases, in particular CO₂, remains a priority. It is therefore a major concern for R&D, which is continuing to develop ecological solutions that will reflect changing needs and new customer behaviours over the coming years. Several key trends can be identified in the R&D studies currently underway, whose aims are to:

- in the immediate term, develop conventional vehicles, i.e. with classic combustion engines, whose emissions will be far lower than the best vehicles currently on the market today. Research studies in this area have already brought tangible results: Renault is one of the only vehicle manufacturers whose range includes eleven models producing less than 140 g of CO₂/km. And at the Challenge Bibendum, the Logan “Renault eco²” Concept (see figure 3) showed the Group’s ability to come up with environmental and economic solutions that take emissions below the 100g/km threshold. Concerning biofuels, which are included in the goals of Renault Commitment 2009 (gasoline: 50% of vehicles compatible with 80% ethanol, diesel: 100% of vehicles compatible with 30% biodiesel), Renault’s aim is to develop engines that can run on fuels of many sources and types. As the dosage quantities and make-up of biofuels are variable, the engines themselves must be highly flexible;
- in the medium term, market all-electric vehicles targeting the general public. Renault has already sold electric vehicles in the past, and taken part in implementing innovative electric mobility solutions (Praxitèle). Building on this experience, Renault is able to satisfy new market requirements. Lithium battery technology, for example, reduces battery weight and makes it possible to carry more energy on board. At the same time, the Group is continuing R&D studies to prepare future generations of electric vehicles. In 2007 a major new project was set up on the batteries of the future, with the emphasis on performance and reliability. The Renault-Nissan Alliance and its partner, Project Better Place, have paved the way for a breakthrough with electric vehicles on the Israeli market. Under the terms of the agreement, Renault will supply electric vehicles fitted with lithium-ion batteries designed by Nissan through a joint subsidiary with NEC. Project Better Place is in charge of developing the electric recharge grid infrastructure. The electric vehicles will be brought to market in 2011;
- in the longer term, place greater emphasis on fuel cell technology. Renault plans to present a number of demonstration vehicles for life-sized tests from this year.”⁴⁷

⁴⁷ Renault: 2007 Registration Document, pp. 63-64.

Logan “Renault eco²” Concept

A technical demonstration vehicle that took part in the Michelin Challenge Bibendum in Shanghai.

Logan “Renault eco²” Concept is a highly economical vehicle that is also ecologically minded, since it satisfies the three criteria of Renault eco² concerning production, use and recycling. In terms of CO₂ emissions, the Logan “Renault eco²” Concept has been homologated at just 97 g/km (NEDC standard combined cycle), consuming just 3.8 l/100 km.

Fitted with a B30 compatible 1.5 dCi (63 kW/85 hp) engine, Logan “Renault eco² Concept” features a host of enhancements and technical solutions that are development paths for future Renault vehicles. These solutions concern:

- powertrain: modified pistons and injection system to improve combustion; detailed studies on play and lubricants to minimize friction, new gearbox staging;
- aerodynamics: reduced Cd through the use of Vortex generators (small aerodynamic roof-mounted components that reduce drag); a flexible splitter under the front bumper, wheel fairings and a rear spoiler;
- running gear: Logan “Renault eco²” Concept is shod with Michelin “Pure” 185/65 R15 tires with low rolling resistance. Toe-in and camber were optimized as was the braking system, as part of systematic efforts to reduce friction.

The dashboard of Logan “Renault eco²” Concept has a “gearshift indicator” feature to help the driver optimize fuel consumption and cut CO₂ emissions. With this function, the Renault team taking part in Challenge Bibendum turned in a strong performance, producing 71g/km of CO₂.

Figure 3: The Logan „Renault eco²“ Concept. Source: Renault: 2007 Registration Document.

Regarding the emissions of the car use phase: “Renault is among the top three carmakers in Europe in terms of reduced CO₂ emissions and fuel consumption. The range of available energies is gradually expanding. Gasoline and diesel: In conjunction with Renault Commitment 2009, a key performance indicator was set up to monitor progress in relation to the following commitment: ‘As of 2008, sell one million vehicles emitting less than 140 grams of CO₂ per km, with one-third of them emitting less than 120 grams.’ In 2006, in the 15-member EU, according to monitoring by the Association Auxiliaire Automobile (AAA), 587,516 vehicles sold by Renault emitted 140 grams or less of CO₂ per km, and 214,175 of them emitted 120 grams or less of CO₂ per km. The graph below shows the progress made by Renault in this segment compared with the overall market, according to the CO₂ labelling system applied in France.”⁴⁸.

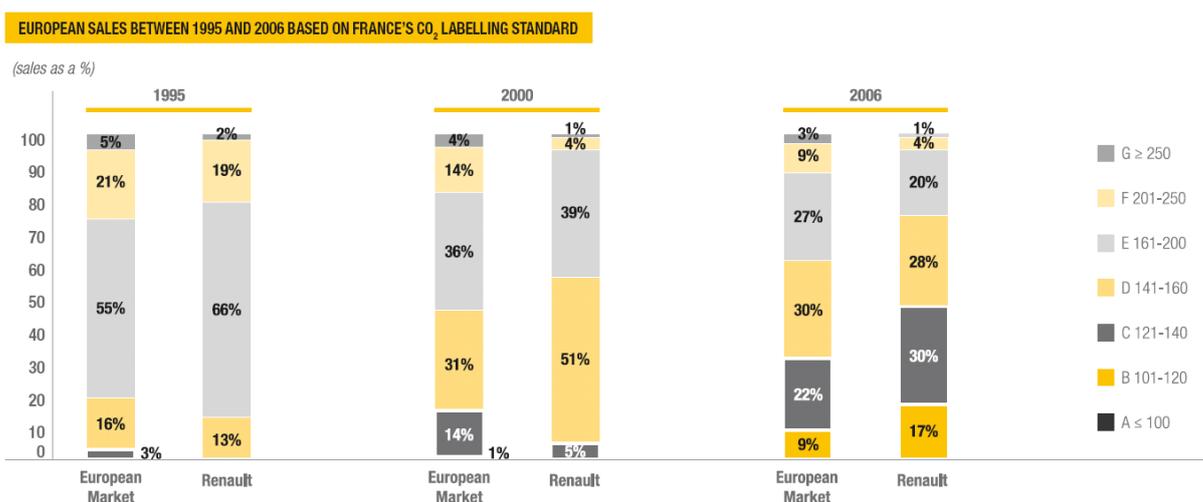


Figure 4: Renault - CO₂ intensity of cars sold on the European market and by Renault between 1995 and 2006. Source: Renault: 2007 Registration Document.

⁴⁸ Renault: 2007 Registration Document, p. 97.

Internal analyses conducted by Renault in 2007 based on the 27-member EU indicate that 866,752 vehicles sold emit 140 grams or less of CO₂ per km, with 37% of them emitting 120 grams or less of CO₂ per km.

In 1998, carmakers made the commitment to the European Commission to bring average emissions down to 140 g of CO₂/km for all cars on the road, i.e. 25% lower than in 1995. The rating varies with the breakdown of sales. Negotiations are in progress to reach a new target of 130 g of CO₂/km by 2012. This CO₂ emissions indicator is called CAFE (Corporate Average Fuel Economy) for Europe.

Renault's CAFE indicator decreased slightly in 2006, placing Renault once again among the top three European carmakers. Renault used three methods to achieve these results.

Method 1, which concerns all projects, involves optimizing all the vehicle parameters that have an effect on fuel consumption and CO₂ emissions; [...]. Despite the greater vehicle weight related to safety features and the increased power for enhanced comfort, engine capacity and CO₂ emissions decreased sharply between 1995 and 2006. [...]

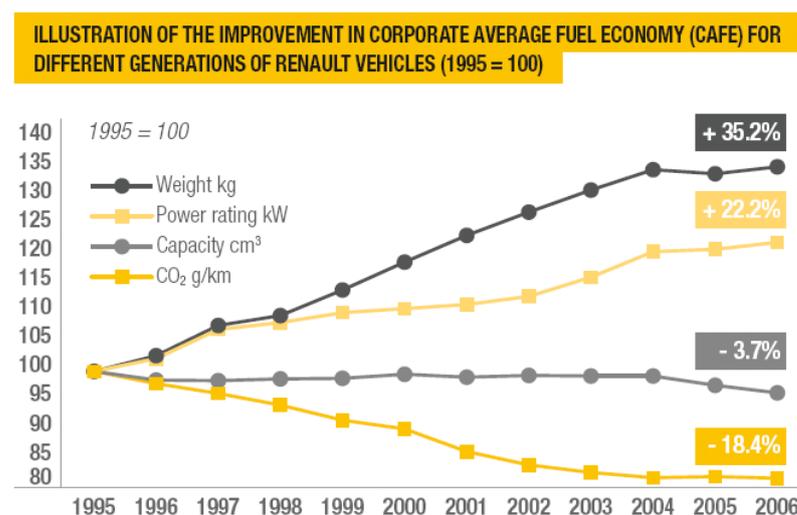


Figure 5: Renault's CAFÉ between 1995 and 2006. Source: Renault: 2007 Registration Document.

Method 2 is the cross-functional deployment, led by the Vice-President of Strategic Environmental Planning, of the "120 – 140 g objective" under Renault Commitment 2009. At-end 2007, more than 150 versions of production vehicles had dropped below the 140 gram threshold, of which one-third below the 120 gram threshold. [...]

Method 3 is to continue to bring vehicles running on alternative fuels to market. After LPG, new fuels are being launched in the range in accordance with the specific features of each region, the available infrastructure for the distribution of each type of fuel and customers' habits.⁴⁹ [2]

⁴⁹ Renault: 2007 Registration Document, p. 98.

“**Volkswagen** has been included again in the Dow Jones Sustainability World Index since September 24, 2007. Volkswagen is rated highly in all 20 criteria of the Corporate Sustainability Assessment, which evaluated such topics as environmental protection, working conditions and social responsibility. In particular the Company's activities in the areas of efficient diesel technology, fuel and drivetrain strategy, supplier relationships and corporate citizenship were positively rated.”⁵⁰

In its Research & Development section VW reports: “In November 2007, the Tiguan HyMotion research vehicle, featuring an 80 kW fuel-cell system, was presented at the “Challenge Bibendum” environmental rally in Shanghai. Following the success of the Polo BlueMotion*, the Volkswagen Passenger Cars brand presented a further seven members of the BlueMotion family last year. This family stands for fuel efficiency and environmental compatibility without compromising driving pleasure. With the addition of the BlueMotion variants of the Golf*, Golf Plus*, Golf Variant*, Passat*, Passat Variant*, Jetta* and Touran*, the eco-label became a definitive synonym for effective environmental protection. The Volkswagen Commercial Vehicles brand rounded off the BlueMotion offensive by presenting the Caddy BlueMotion study, which is close to series production. In a similar vein to the successful BlueMotion models from the Volkswagen Passenger Cars brand, Škoda presented the environmentally-friendly and fuel-efficient GreenLine model range. The ‘e’ models at Audi and the “ECOMOTIVE” models at SEAT have the lowest fuel consumption and emission levels within their respective model ranges (* Consumption and emission data can be found on page 296 of the Report). [...]”

⁵⁰ Volkswagen, Annual Report 2007, p. 126.

Model	Output kW (PS)	Fuel consumption (l/100km)			CO ₂ emissions (g/km)
		urban	extra-urban	combined	
Audi RS 6 Avant	426 (580)	20.4	10.3	14.0	333
Bentley Azure	336 (456)	28.8	14.1	19.5	465
Bentley Brooklands	395 (537)	28.8	14.1	19.5	465
Bentley Continental Flying Spur	411 (560)	26.2	11.9	17.1	410
Bentley Continental GT Coupé	412 (560)	25.3	11.6	16.6	396
Bentley Continental GT Cabrio	411 (560)	26.2	11.9	17.1	410
Bentley Continental GT Speed Coupé	449 (610)	25.3	11.6	16.6	396
Lamborghini Gallardo Coupé	382 (520)	24.8	12.4	17.0	400
Lamborghini Gallardo Spyder	382 (520)	24.8	12.4	17.0	400
Lamborghini Gallardo Superleggera	390 (530)	24.8	12.4	17.0	400
Lamborghini Murciélago LP 640	471 (640)	32.3	15.0	21.3	495
Lamborghini Murciélago LP 640 Roadster	471 (640)	32.6	15.1	21.3	500
SEAT Leon Cupra R	177 (240)	11.4	6.5	8.3	199
VW Caddy EcoFuel	80 (109)	8.2*	4.7*	6.0*	157
VW Polo BlueMotion	59 (80)	4.9	3.2	3.8	99
VW Golf BlueMotion	77 (105)	5.8	3.8	4.5	119
VW Golf Plus BlueMotion	77 (105)	6.1	4.1	4.8	127
VW Golf Variant BlueMotion	77 (105)	5.9	3.9	4.6	122
VW Jetta BlueMotion	77 (105)	5.9	3.9	4.6	122
VW Touran BlueMotion	77 (105)	7.0	4.7	5.4	144
VW Touran EcoFuel	80 (109)	8.1*	4.5*	5.8*	155
VW Passat BlueMotion	77 (105)	6.7	4.2	5.1	136
VW Passat Variant BlueMotion	77 (105)	6.8	4.4	5.2	137

* In kg/100 km.

Figure 6: VW - Comparison of VW models concerning fuel consumption (l/100km) and CO₂ emissions (g/km). Source: Volkswagen, Annual Report 2007.

“At the Frankfurt International Motor Show (IAA) in September 2007, Volkswagen gave the public its first glimpse of the New Small Family when it unveiled the up! small car study, a city car with a rear-mounted engine and high degree of functionality. The prototype was much praised and in November 2007 won the well-known “Concept Car Award 2007” in the UK. Just a few weeks after the IAA, at the end of October 2007, the Space up! was presented at the Tokyo Motor Show. With five doors, this minivan in the New Small Family is slightly longer than the up!. Thanks to the rear-mounted engine, it also offers a comparatively spacious interior. Finally, the Space up! Blue, a further addition to the New Small Family, made its debut at the Los Angeles Auto Show in November. As well as being driven by a high temperature fuel cell, this hybrid vehicle’s battery can be charged via an electrical outlet. [...]”

“Volkswagen is also supporting the rapid market launch of SunFuel, a renewable second-generation biofuel. With this aim in mind, we are seeking to form cooperation arrangements with and make direct investments in companies that are dedicated to producing these fuels. Back in 2002, Volkswagen and CHOREN Industries⁵¹ decided to promote and drive forward the development of new fuels. In 2007, Volkswagen made a financial investment in CHOREN. The long-term aim of the cooperation arrangement is to produce SunDiesel in Germany in accordance with minimum sustainability standards.

⁵¹ CHOREN is one of the world’s leading gasification technology companies for solid biomass and oil based residue feedstock, see: www.choren.com.

The first commercial plant, with an annual output of 15,000 tonnes, is scheduled to come on stream in 2008. Construction work is scheduled to start on the first large-scale plant, with an annual output of 200,000 tonnes, a year later. In the area of biofuels, Volkswagen also has a longstanding partnership with IOGEN⁵². The long-term aim of the cooperation arrangement is to produce cellulose ethanol in Germany.”⁵³

Regarding its brand Volkswagen reports: “The brand image combines the three core messages “innovative”, “providing enduring value” and “responsible”. A number of technical highlights, such as the pioneering TSI, FSI and TDI engines or the direct shift gearbox (DSG), and our BlueMotion model range, which demonstrates our keen awareness of our responsibility towards people and the environment, already express this brand image.”⁵⁴

VW reports about its fuel and drivetrain strategy: “The Volkswagen Group’s fuel and drivetrain strategy is aimed at pointing the way to sustainable mobility. We wish to actively contribute to reducing global CO₂ emissions, local emissions such as nitrous oxides or soot particles as well as dependence on oil. In addition to the use of primarily regenerative CO₂-neutral energy sources, we include conventional, oil derived fuels in our strategic considerations. We concentrate on further optimizing their properties and thus reducing emissions. As part of our drivetrain strategy, our use of TSI technology – a petrol direct injection with turbo- or supercharger – builds on the successful TDI engine concept. TSI engines have consumption levels of up to 20% less than other fuel injection engines while retaining the same exceptional driving dynamics. A further example of highly efficient drive technology is the direct shift gearbox (DSG), which is considerably more effective than conventional automatic gearboxes and reduces fuel consumption by 15%. The Touran-* and Caddy-EcoFuel* (* Consumption and emission data can be found on page 296 of the Report) natural-gas models are also capable of running on petrol. In natural gas mode, they emit up to 25% less CO₂. Sulfur dioxide, soot and other particle emissions are almost completely eliminated. Hybrid technology plays a central role in our drivetrain strategy in addition to petrol and diesel engines. Together with strategic partners and international universities, we are working intensively to integrate hybrid drives in future series products. With regard to engine development, petrol and diesel engines are becoming increasingly similar. The introduction of direct injection in petrol engines marked a milestone in this area. Further developments in combustion processes also highlight the increasing similarity between the two technologies. On the diesel side, for example, work continues on homogeneous mixture formation as in petrol engines. Meanwhile, attempts are under way to make the spark plugs on petrol engines superfluous, at least in certain parts of the engine map, using a homogeneous compression ignition system. The result produced by combining the two combustion systems is referred to at Volkswagen as “CCS” and was developed based on today’s diesel engines. This combustion system allows limited pollutants such as nitrous oxides and soot particles to be reduced, while at the same time significantly improving efficiency. CCS

⁵² IOGEN Corporation is the world’s leading producer of cellulose ethanol, a fully renewable second generation biofuel that can be used in today’s cars, see: www.iogen.ca.

⁵³ Volkswagen, Annual Report 2007, p. 146.

⁵⁴ Volkswagen, Annual Report 2007, p. 152.

therefore combines the benefits of diesel and petrol engines and may well prove to be one of the most important new engine concepts of the coming decades. Over the long term, we expect locally emission-free mobility to gain ground, for example in the form of battery-operated electric vehicles or vehicles powered by fuel cells. Hydrogen-operated fuel-cell vehicles are currently the only emission-free system capable of providing an acceptable range. The Volkswagen Group's research department has developed a unique high-temperature fuel cell: thanks to the use of electrodes permitting a higher operating temperature for fuel cells, the new system is smaller, more efficient and less expensive than any fuel cells to date. Although electric vehicles have the best energy rating, their range does not yet satisfy customer requirements: based on current storage technology, they can be expected to provide a maximum range of 50 km. Not until there have been significant advances in pure research into battery storage technology will pure electric traction become possible. Our fuel strategy centers on diversifying energy sources and at the same time developing new fuels. The main focus here is on second-generation biofuels, which Volkswagen refers to collectively as "SunFuel". These harbour considerable potential in terms of reducing CO₂, do not represent competition for food production and are compatible with existing infrastructure. SunEthanol is one example of a biofuel optimized for petrol engines. It is derived from straw using a biochemical process developed by IOGEN. The equivalent fuel for diesel engines is called SunDiesel. This synthetic fuel can be manufactured from a number of different primary sources such as biomass or residual biomaterials. The quality and chemical composition of the end product do not depend on those of the primary energy used. Synthetic fuels can be used in both current and future combustion engines. They can also be adapted to the requirements of enhanced engine technology more easily than conventional fuels. At the same time, they offer considerable potential for reducing harmful emissions due to their purity of composition and the fact that their properties can be tailored. Furthermore, they can be ideally adapted to the new CCS combustion system, thereby further increasing this system's potential in terms of fuel consumption and exhaust emissions."⁵⁵

VW names some new regulations regarding climate change in its risk report, however does not report on the very important target of the EU to further reduce the fleet-consumption of passenger cars. "Reductions in greenhouse gas emissions are being intensively pursued by the global community and in particular by the EU and the Federal Republic of Germany. The climate and energy plan decided by the EU in March 2007 states that, by 2020, it aims to reduce greenhouse gas emissions by at least 20% compared with 1990 levels and to expand renewable energies to 20%. The Federal Republic of Germany aims to reduce greenhouse gas emissions by 40% over the same period. [...] Furthermore, there is a general risk of increased environmental protection regulations with a view to limiting global carbon dioxide emissions."⁵⁶

In its research outlook VW reports: "As part of our research work, we dedicate a considerable amount of time and energy to traffic-related megatrends that will affect our

⁵⁵ Volkswagen, Annual Report 2007, pp. 159-160.

⁵⁶ Volkswagen, Annual Report 2007, p. 166.

products and processes in the future. These include not only the increasing importance of environmental and climate protection aspects [...]”⁵⁷

Finally VW describes the trend towards a huge low-cost segment in emerging markets without mentioning the important fuel efficiency aspects: “Over the coming years, hundreds of millions of people will try to gain the mobility provided by a car. Due to the low purchasing power per household in these countries, there will be a demand for basic mobility at extremely favourable prices. Automotive manufacturers able to offer fully functioning vehicles at prices of between €3,000 and €6,000, depending on size, will meet with very strong demand. This provides the opportunity to produce and sell in high volumes. However, entering a low-cost segment of the market also poses considerable risks, as a brand’s positioning may suffer as a result. Significant changes will be seen in the lower-cost market segments over the coming years. One thing is already apparent: it is impossible for any company with its sights on a leading role in the global automotive market to ignore these trends.”⁵⁸

In comparison to other analysed reports one could not find a real strategy of VW to decrease fuel consumption for the whole fleet. [4]

2.2.3. Opportunities and risks of oil price changes and impacts on purchase decisions of consumers

Regarding risks relating to the general economic environment **BMW** states: “Changes in the price of crude oil, which is an important basic material in the manufacture of components, have an indirect impact on production costs. As a manufacturing enterprise, the BMW Group is also affected by changes in energy prices, caused by both market factors and tax legislation.”⁵⁹

Regarding specific industry risks BMW describes that fuel prices, whether influenced by market or governmental tax policies, and increasingly stringent requirements to reduce vehicle fuel consumption and emissions, all set high demands on the BMW Group’s engine and product development activities. One manifest result of this has been the reduction of consumption and emissions achieved with the BMW Group’s EfficientDynamics strategy⁶⁰. Yet, no direct impacts on purchase decisions are reported. [4]

Regarding the impact of oil price changes **Daimler** states: “With sales of 16.1 million units (2006: 16.5 million), the US market for passenger cars and light trucks continued to decline parallel to the slowdown of economic growth. The weakening of the world’s biggest automobile market was worsened by the effects of the mortgage crisis, the related distinct drop in private consumption, and the continuation of high fuel prices. In terms of vehicle segments, over the full year it was mainly the so-called compact crossover

⁵⁷ Volkswagen, Annual Report 2007, p. 171.

⁵⁸ Volkswagen, Annual Report 2007, p. 173.

⁵⁹ Cf. BMW Group: Annual Report 2007, p. 63.

vehicles offering a fuel-efficient combination of sedan, station wagon and SUV that profited.”⁶¹

In its risk report Daimler mentions high energy prices as an economic risk: “There is also the danger that the high energy prices will reduce potential purchasing power. The ongoing relatively robust development of the world economy in 2008 that is anticipated by the majority of economic research institutions, and also by Daimler, is highly dependent on the development of these risks factors. This means that there are still considerable economic risks for the Group’s financial position, cash flows and profitability.”⁶²

The real impact of rising oil prices on consumer demand is described qualitatively in the section “industry and business risks”. “In some markets, the United States in particular, higher fuel prices have caused many consumers to prefer smaller, more fuel-efficient vehicles. In order to enhance the attractiveness of less fuel-efficient vehicles, additional measures could be necessary with an adverse effect on profitability. A shift in the model mix towards smaller vehicles with lower margins would also place an additional burden on the Group’s financial position, cash flows and profitability.”⁶³ [3]

As in 2006, **Fiat** does not report at all about (impacts of) oil price changes. [6]

PSA reports only that its transportation and logistics business of **Gefco** (PSA) was particularly affected by the surge in diesel fuel prices, with oil reaching \$100 a barrel in December 2007.⁶⁴ “In recent months, transportation companies have had to deal with the serious cost impact of the spike in the price of both oil, which has approached a record \$100 a barrel, and diesel fuel, which now exceeds €1 a liter in France. Passing on part of these increases to customers and implementing cost reduction plans enabled Gefco to limit the negative impact on earnings.”⁶⁵ [5]

Porsche does report about a residual value risk in the leasing business, however without mentioning that oil price changes impact this residual value and consumers’ decisions to an important amount: “Another business area that requires ongoing precautionary measures is leasing. Its expansion for some years now, in parallel with increased vehicle sales, has increased the residual value risk involved in the disposal of vehicles returned to Porsche financial services entities at the end of the relevant lease agreements. To limit this risk, the residual value of Porsche vehicles in the used car market is continuously monitored, and this information used as a basis for establishing the residual value in future leasing vehicle agreements. Remaining residual risks are taken into account in the Porsche Group balance sheet.”⁶⁶ [6]

⁶⁰ Cf. BMW Group: Annual Report 2007, p. 64.

⁶¹ Daimler: Annual Report 2007, p. 40.

⁶² Daimler: Annual Report 2007, p. 68.

⁶³ Daimler: Annual Report 2007, p. 69.

⁶⁴ Cf. PSA Peugeot Citroën: 2007 Registration Document, p. 47.

⁶⁵ PSA Peugeot Citroën: 2007 Registration Document, p. 130.

⁶⁶ Porsche: Annual Report 2006/2007, p. 22.

About **Nissan**'s strategy one can read in the Renault Registration Document: "In the United States, first-half sales rose 4.1% to 534,000 units – as total industry volume fell 2.4%. Here again, Nissan increased its market share by half a point to 6.3%. Nissan launched the all new Rogue in September and new Murano in January, and expects these key products to perform well in a turbulent US market where consumers are moving towards more fuel-efficient vehicles."⁶⁷

Renault's new "Laguna is highly appreciated by the sales network. In two and a half months, 22,600 units of the new model have been sold. With the dCi 110 hp engine, New Laguna has a CO₂ emission level of 130 g/km. This is at the top level of its segment and an illustration of Renault's eco2 environmental initiative."⁶⁸ [4]

VW describes risks arising from changes in demand: "Consumer demand depends not only on real factors such as disposable income, but also to a significant extent on psychological factors that are impossible to plan for. A combination of higher commodity prices and the uncertainty surrounding future CO₂ emission taxation may lead to unexpected consumer reluctance to spend, which may in turn be exacerbated by media reports. This is particularly the case in saturated markets such as Western Europe, where demand may plummet as a result of owners keeping their vehicles for longer periods. We attempt to counter this consumer reluctance to spend through our fuel and drivetrain strategy, by offering attractive new models and by maintaining an intense customer focus. Furthermore, if the final details of a CO₂ tax for Europe are worked out, this may cause a shift in demand towards certain types of engine within the range and thus have a detrimental effect on our financial results. In the rapidly expanding markets of Asia and Eastern Europe, risks can also arise due to government intervention when lending restrictions and tax increases have an adverse effect on private consumption. Demand risks can also arise owing to further increases in oil prices. We counter these risks by developing fuel-efficient vehicles and alternative fuels as part of our fuel and drivetrain strategy."⁶⁹

In its outlook VW forecasts: "In the USA, we expect the economic climate to cool, partly because of the crisis in the mortgage market. This, combined with high fuel prices, will impact negatively on demand for new vehicles. [...] Germany: Following a weak year in 2007, demand for passenger cars is expected to pick up slightly in Germany in 2008, although high fuel prices and economic uncertainty may have a negative impact."⁷⁰

"Global automotive markets will also expand at a slower pace compared with 2007. We expect growth to be slowed primarily by further rises in the price of energy and commodities, particularly oil, as well as the current CO₂ debate."⁷¹ [2]

⁶⁷ Renault: 2007 Registration Document, p. 35.

⁶⁸ Renault: 2007 Registration Document, p. 46.

⁶⁹ Volkswagen: Annual Report 2007, p. 164.

⁷⁰ Volkswagen: Annual Report 2007, p. 171.

⁷¹ Volkswagen: Annual Report 2007, p. 176.

2.2.4. Risk management reporting about environmental complaints including legal proceedings

All analysed companies reported inappropriately on the issue of environmental complaints, including legal proceedings. [6]

Daimler [Evaluation: 5], **PSA Peugeot Citroën** [4], **Renault** [4] and **VW** [4] at least mentioned aspects corresponding to the environment. Nevertheless, no company regarded the legal disputes with the State of California concerning emission reductions of the automobile industry as important enough to comment on them.

The **BMW** Group states that it is currently not involved in any court or arbitration proceedings which could have a significant impact on its financial condition⁷².

Daimler mentions in its note 27 regarding legal proceedings: “Various legal proceedings, claims and governmental investigations are pending against Daimler AG and its subsidiaries on a wide range of topics, including vehicle safety, emissions and fuel economy, financial services, dealer, supplier and other contractual relationships, intellectual property rights, product warranties, environmental matters, and shareholder matters.”⁷³ Regarding the impacts Daimler believes that any resulting obligations are unlikely to have a sustained effect on the Group’s earnings, financial position or cash flows⁷⁴.

PSA Peugeot Citroën: “Amount of penalties paid following a legal ruling concerning the environment: The Group did not have to pay any penalties in this regard in 2007.”⁷⁵

“As is the case with any other company, **Porsche** may become involved in court or arbitration proceedings. At present there are no proceedings, which could have a material impact on the economic position of the Group.”⁷⁶

“There are three main aspects of environmental risk for **Renault**: environmental impact of malfunctions in its plants, harm to individuals (personnel and people living near the plants), past pollution of subsoil and groundwater.”⁷⁷ “At December 31, 2007 the Group had €0 million in provisions for the enforcement of environmental regulations. The main aim of these provisions is to pay for the rehabilitation of land at Boulogne and to meet the cost of processing end-of-life vehicles.”⁷⁸

⁷² Cf. BMW Group: Annual Report 2007, p. 65.

⁷³ Daimler: Annual Report 2007, p. 179.

⁷⁴ Cf. Daimler: Annual Report 2007, p. 73.

⁷⁵ PSA Peugeot Citroën: 2007 Registration Document, p. 117.

⁷⁶ Porsche: Annual Report 2006/2007, p. 23.

⁷⁷ Renault: 2007 Registration Document, p. 24.

⁷⁸ Renault: 2007 Registration Document, p. 69.

“In the normal course of its business, the Group is involved in various legal proceedings connected with the use of its products. At present, Renault estimates that none of these actions is likely to materially affect its assets, financial position, activities or earnings.”⁷⁹

VW reports about several environmental protection regulations⁸⁰.

2.2.5. Reporting about lobbying activities regarding reductions in fuel consumption and/or further measures in climate change policies/regulations at EU level, in other important markets or at a global level

BMW describes that the issue of CO₂ emission limits based on the unladen weight of a vehicle has been taken up by the European Commission. This involves setting differentiated CO₂ emission limits on the basis of predefined vehicle classes. The proposal requires significantly higher CO₂ reductions for larger vehicle classes than for smaller ones. Consumption efficiency requirements and proposals have also been put forward in the USA. The proposed rules for CO₂ emissions and fuel economy could have a materially adverse effect on the business development of the Automobiles segment and consequently on the Group's earnings performance⁸¹. The BMW Group advocates the use of differentiated CO₂ limits for different vehicle classes. These limits should be set at levels that are transparent and therefore meet customers' expectations. Achieving real improvements for the environment requires measures to be applied fairly to all vehicle classes. The BMW Group therefore supports the current debate as to how ecological improvements can be achieved that take all factors into account.⁸² [3]

Daimler does not report on any lobbying activity regarding the important reductions in fuel consumption. [6]

Fiat, PSA and Porsche do not report about lobbying activities regarding reductions in fuel consumption. [6]

Renault's report on lobbying is “Best Practice” so far, even if it reports mainly about its home market France: “At Renault, actively protecting the environment means creating a range of vehicles and services that will maintain the ecological balance in the local ecosystem and at planetary level, taking into account the environmental and economic situations in each market. It also means tracking and taking part in scientific, regulatory and fiscal debate with French and European authorities to reduce the impact of the car on

⁷⁹ Renault: 2007 Registration Document, p. 77.

⁸⁰ Cf. Volkswagen: Annual Report 2007, pp. 165-167.

⁸¹ Cf. BMW Group: Annual Report 2007, p. 64.

⁸² Cf. BMW Group: Annual Report 2007, p. 64.

the environment. Renault welcomed an initiative put forward at the end of 2007 by the French government which: rewards vehicles emitting less than 130 g of CO₂ per kilometer; penalizes those emitting more than 161 g of CO₂ per kilometer; is neutral for vehicles with CO₂ emissions of between 131 g and 160 g of CO₂ per km. In France's national debate on the environment, Renault again stated that it was very much in favor of this type of taxation, based on a bonus/surcharge system. This type of taxation promotes the increased availability of vehicles with low CO₂ emissions. These vehicles play an essential role in efforts to prevent climate change. Renault's commitment in this area dates back to February 2006 and Renault Commitment 2009, and was further reinforced by the roll-out of the Renault eco2 label in May 2007."⁸³ [2]

VW does not report at all about its lobbying positions. [6]

2.3. SD-KPI 2: Energy and greenhouse gas intensity of the production – Opportunities and risks regarding necessary changes in the production

Due to the mandatory requirements resulting from the EU End-of-life Vehicles Directive, in 2007 the **BMW** Group pushed ahead with strategies of designing vehicles with subsequent recycling in mind and increasing the recycling proportions⁸⁴ – which will reduce the greenhouse gas intensity of the production in the long term. A new objectives-based process was introduced for production in 2007, making it easier to measure and manage the effective use of resources. Performance indicators relevant to environmental protection, such as energy consumption and waste levels at the BMW Group production sites, are measured and reported on a monthly basis and a so-called “environment efficiency ratio” is calculated⁸⁵ – which will also reduce the greenhouse gas intensity of the production in the long term. **Compared to 2006, the BMW Group reduced energy consumption per unit produced by 4.1 % and CO₂ emissions by 10.6 %**⁸⁶. These figures are stated relatively not absolutely. [3]

⁸³ Renault: 2007 Registration Document, p. 94.

⁸⁴ Cf. BMW Group: Annual Report 2007, p. 30.

⁸⁵ Cf. BMW Group: Annual Report 2007, p. 30.

⁸⁶ Cf. BMW Group: Annual Report 2007, p. 31.

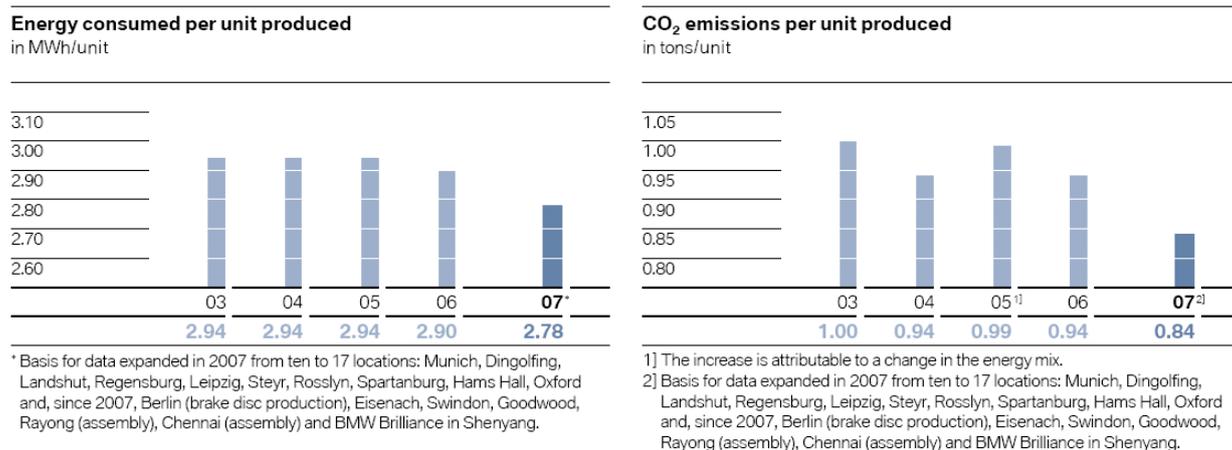


Figure 7: BMW Group - Energy and CO₂ intensity of the production. Source: BMW Group: Annual Report 2007.

Daimler reports briefly about increasing absolute energy consumption, however with decreasing absolute amounts of CO₂ emissions. “With the help of environmentally friendly production processes, we have succeeded in recent years in continually reducing CO₂ emissions, production-related solvent emissions and noise pollution at our plants. Despite the additional inclusion of eight Mitsubishi FUSO plants, energy consumption increased between 2001 and 2006 by only 0.6% to 19.2 million megawatt hours. During the same period, CO₂ emissions decreased by 0.7% to approximately 7.25 million tons as a result of using less carbon-intensive energy sources.”⁸⁷ [4]

Fiat mainly refers to its sustainability report: Since 1993, the Group has published an Environmental Report, expanding it in 2005 to become part of the Sustainability Report. Now in its fourth year, the Sustainability Report illustrates the Group’s commitments and achievements around the world, on the environmental and social as well as economic fronts. It provides a detailed view of the Group’s attention to ensuring sustainable manufacturing practices at its production plants and to developing environmentally friendly products with low consumption and emissions.⁸⁸ [5]

“**Peugeot and Citroën** cars are all eco-designed for recycling, based on principles that facilitate the decontamination of end-of-life vehicles (ELV) and encourage the development of recovery and recycling facilities. Other recyclability techniques include marking plastic parts and elastomers for traceability, using easily recyclable materials, reducing the variety of materials to facilitate sorting after shredding, and using recycled materials in new vehicles. This approach will enable the Group to comply with the requirement that, beginning in 2008, a new car must be 95% recyclable to be homologated in the EU. [...] At least 95% of the average weight of new Peugeot and

⁸⁷ Daimler: Annual Report 2007, p. 56.

⁸⁸ Fiat: Annual Report 2007, p. 23.

Citroën vehicles is reusable and recoverable, according to prevailing ISO standards and the Group's own calculations.”⁸⁹

PSA is managing its energy consumption: “Casting, machine tool cooling, paint drying, heat treatment and other car-making processes are all energy intensive. The Group is committed to developing action plans to reduce energy consumption at all its plants. One of the most remarkable initiatives undertaken in recent years has been the installation of **waste-to-energy units** at three facilities.”⁹⁰

PSA is participating in the CO₂ emission allowance scheme with surplus: “Seven plants in France and two in Spain were covered by the initial CO₂ emission allowance scheme set up in application of the European Union directive on greenhouse gas emissions trading for the 2005 to 2007 period. The plants' emissions were actually lower than the allocated targets – which were set on the basis of an inventory of the plants' emissions from 1996-2002 – thereby resulting in surplus allowances. This good performance is the result of a reduction in CO₂ emissions per vehicle produced, reflecting both the substantial investment in recent years to improve efficiency at installations rated over 20 MW and the implementation of an energy management strategy at all of the manufacturing facilities.”⁹¹

To comply with French decree no. 2002-221 of February 20, 2002 PSA states **environmental indicators for its production plant consumption and emissions** on ten pages. For the years 2005-2007 and separated by business segments, one can find the absolute consumption of several fossil fuels (especially natural gas and electricity) expressed in the same unit of measurement (MWh ncv) by applying officially recognized conversion coefficients – and the air emissions from combustion plants in tonnes for CO₂, N₂O, CH₄, total CO₂ equivalent, SO₂, NO₂ and VOC.⁹² However, neither the business relevance nor the relative development per vehicle is reported in detail.

Regarding manufacturing risks PSA reports generally: “Special attention is paid to the environmental impact of manufacturing facilities. The design specifications of plant and equipment include processes and devices to control pollution and environmental risks. A dedicated unit within the Public Affairs and Environment Department centrally manages environmental risks related to manufacturing operations and regularly reports Group-level environmental data. The structures dedicated to managing environmental risks, at the Automobile Division's production plants and elsewhere in the organization, comply with ISO 14001 environmental management standards. Worldwide, 26 of the main Automobile Division production plants were ISO 14001-certified as of end-2007. The ISO certification program is supported by annual capital expenditure budgets for environmental projects. All industrial projects are reviewed by the design department, the plant concerned, technical department experts and Group environmental specialists in order to identify the potential risks and devise appropriate responses.”⁹³ [3]

⁸⁹ PSA Peugeot Citroën: 2007 Registration Document, pp. 102-103.

⁹⁰ PSA Peugeot Citroën: 2007 Registration Document, pp. 104.

⁹¹ PSA Peugeot Citroën: 2007 Registration Document, pp. 104.

⁹² Cf. PSA Peugeot Citroën: 2007 Registration Document, pp. 108-117.

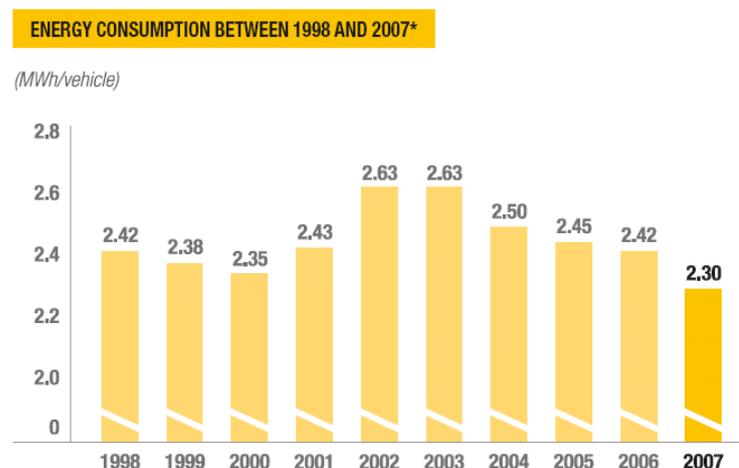
⁹³ PSA Peugeot Citroën: 2007 Registration Document, pp. 140.

At **Porsche** AG capital expenditures on property, plant and equipment and intangible assets accounted for a figure of 608.1 million Euros (previous year: 420.3 million Euro). This included various rationalization projects such as the ongoing modernization of the IT systems, the replacement of existing assets, and measures related to environmental protection.⁹⁴

Porsche describes oil price changes only as a risk for production prices, not for consumers' demand (cf. 2.2.3): "Like any other manufacturing company, Porsche is affected by the development in energy prices stemming from the market and fiscal policy. If the price of crude oil or raw materials were to increase again, it cannot be entirely ruled out that this will negatively impact on Porsche's profitability. Any price increase leads indirectly to a rise in materials and production costs. Porsche therefore monitors the raw materials markets and endeavours to minimize the cost risk by means of long-term supplier agreements. On the other hand, a conceivable reduction in raw materials prices could enhance profitability."⁹⁵

Outlook: "The risks, which may impede further growth of the world economy, are substantial. Besides rising prices of energy and raw materials in the wake of the high demand from the developing countries in Asia, the effects of the crisis in the US property market pose the greatest risk."⁹⁶ [6]

Renault reports on its decreasing energy consumption per vehicle: "The action plan originally set in train in 2002 after the inclusion of several new industrial plants, such as Pitesti (Romania), in the reporting scope has now been extended. This has resulted in a **12.4% reduction in energy consumption per vehicle between 2002 and 2007**."⁹⁷



* The 2007 reporting scope includes production, logistics and engineering sites (see chapter 8.4.2). The vehicles included in the production data are those manufactured by the industrial sites in which Renault has a majority interest.

Figure 8: Renault - Energy consumption per vehicle between 1998 and 2007. Source: Renault. 2007. Registration Document.

Renault's energy consumption results as in greenhouse gas emissions and emission allowances as follows: "In 2003, aware of the impact of its activities on greenhouse gas

⁹⁴ Cf. Porsche: Annual Report 2006/2007, p. 20.

⁹⁵ Porsche: Annual Report 2006/2007, p. 22.

⁹⁶ Porsche: Annual Report 2006/2007, p. 24.

⁹⁷ Renault: 2007 Registration Document, p. 96.

emissions, Renault conducted an inventory of greenhouse gas sources at all the production, logistics and office sites included in the scope of environmental reporting, and reviewed its reporting system with the assistance of an independent organization. Renault's reporting system is compliant with the French EPE (Entreprises Pour l'Environnement) standard for greenhouse gas inventories, which guarantees the reliability of the results.

Renault is implementing a three-pronged strategy for cutting greenhouse emissions from its industrial sites: increase energy efficiency; reduce energy consumption; change fuels. These actions are included in site management plans so that targets can be set for future vehicle projects. **Since 2003, total direct emissions of greenhouse gases have fallen from 755 kteq CO₂ (kilotons of equivalent CO₂) to 688 kteq CO₂ in 2007.** On January 1, 2007, Romania became a member of the European Union, and the Dacia plant in Pitesti joined the European CO₂ emissions trading scheme. A total of thirteen Renault group industrial sites (seven in France, four in Spain, one in Slovenia and one in Romania) are now part of this scheme, which was set up on January 1, 2005 to help member states respect their commitments under the Kyoto protocol. In this scheme, companies whose emissions are below quota may trade their allowance with companies that exceed theirs. Renault thus has a quota of 537 kilotons of CO₂ for all the plants concerned by the European emissions trading scheme. Viewed against the European market it totals⁹⁸ 414,400 kilotons of CO₂, this figure shows that the Group accounts for just a modest share of emissions on the trading market. Renault has opted to manage all its emissions allowances with a single broker in order to increase efficiency and prepare joint action for progress at all its industrial sites around the world.”⁹⁹ [2]

Volkswagen AG's expenditures on environmental protection show low amounts of investments and are mainly production-oriented. “Investments for environmental protection consist of both product-related as well as production-related measures. The investments in product-related measures relate mainly to the reduction of exhaust emissions. Expenditures on water pollution control, waste management and air pollution control are the main focus of the investments for environmental protection in production. Operating costs relating to environmental protection are broken down into expenditures for the operation of environmental protection equipment and expenditures not relating to such equipment. They relate mainly to production-related measures. Operating costs relating to environmental protection increased by 4.1% to €177 million in the reporting period.”¹⁰⁰

⁹⁸ Quotas allocated to the European countries where Renault is present and which are subject to quotas (France + Spain + Slovenia + Romania).

⁹⁹ Renault: 2007 Registration Document, pp. 96-97.

¹⁰⁰ Volkswagen: Annual Report 2007, pp. 144-145.

VOLKSWAGEN AG EXPENDITURE ON ENVIRONMENTAL PROTECTION

€ million	2007	2006	2005	2004	2003
Investments	20	19	27	16	24
Operating costs	177	170	194	202	195

OPERATING COSTS FOR ENVIRONMENTAL PROTECTION AT VOLKSWAGEN AG IN 2007

Share of environmental protection areas as percent

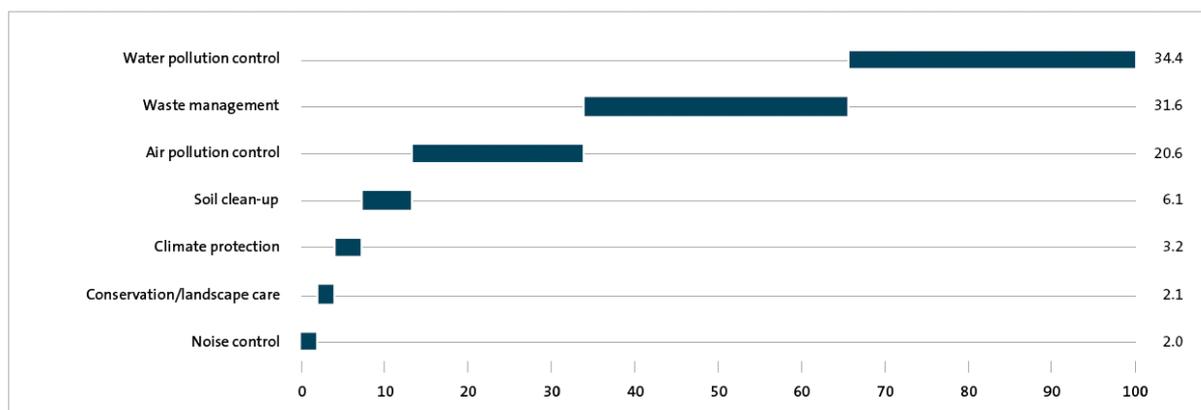


Figure 9: Volkswagen - Expenditure on environmental protection. Source: Volkswagen: Annual Report 2007.

At VW “environmentally-compatible production starts at the product development stage, as the design and the choice of materials have a major influence on the subsequent production and recycling processes. Last year, the Volkswagen Passenger Cars brand revised the environmental targets of its technical development function; these are based around the **three main themes of climate protection, conservation of resources and health protection**. The development processes are designed such that **every new vehicle model has a better overall environmental profile than its predecessor**. When developing a new vehicle, we consider its entire lifecycle. [...]

In order to reduce energy consumption and therefore CO₂ emissions during production, VW Kraftwerk GmbH and the Audi brand among others operate their power plants on the principle of combined heat and power. This system currently makes the best use of energy resources from both a technical and ecological perspective. Since April 2004, we have also been conducting internal energy audits in an effort to continually optimize our energy consumption. [...]

Logistics is an area particularly relevant to the environment. All Group brands aim to significantly reduce the volume they transport by truck.”¹⁰¹

No quantified information regarding SD-KPI 2, the energy and greenhouse gas intensity of the production per vehicle are provided. [5]

¹⁰¹ Volkswagen: Annual Report 2007, p. 158.

3. Conclusion

Reporting on financial and non-financial impacts of climate change and oil prices in annual reports has been a new topic for about four years now and will become even more **important for investors and analysts** soon.

The result of this study is similar to the one from last year, however the average reporting quality has slightly increased by 0,4 evaluation points on a scale from 1 to 6.

The evaluation of the annual reports of the named European automobile companies shows, among other things, that:

- legislation in France leads to more comprehensive annual reports integrating sustainability issues;
- **no company totally fulfils the requirements of the Directive 78/660/EEC**, respectively §§ 289, 315 HGB (German law);
- the most important “Sustainable Development Key Performance Indicator” (SD-KPI) for investors and analysts, the **sales-weighted average fleet consumption for 2007** (e.g. in g CO₂/km for the EU/worldwide, respectively miles per gallon for the USA), **was not reported** by six out of seven enterprises on this aggregated level;
- **PSA** is the only automobile company, which reports on the **sales-weighted average fleet consumption**. However, so far PSA reports only for its most important home market France;
- the **reporting quality** of the evaluated sections ranged broadly from [2] to [6], on a scale from [1] (very useful for investors) to [6] (not useful at all for investors);
- **German companies were reporting worst** in the most important sections regarding fuel consumption (2.2), while **PSA Peugeot Citroën and Renault received the best ratings**;
- however, in other sectors the evaluation results were mixed (see 2.2 to 2.3);
- **Porsche reported worst regarding climate risks**. However, Porsche's reporting on oil price related risks has improved in comparison to 2006;
- **Renault reported** in a **good manner about its lobbying activities** regarding reductions in fuel consumption and/or further measures in climate change policies/regulations.

With the given information in the annual reports, analysts and investors are not able to fully evaluate the financial and non-financial risks and/or opportunities caused by climate change impacts on the automobile industry sector (fuel price, shifts in consumer behaviour, regulatory environment).

Therefore, the horizon for the formal business outlook regarding this important topic should be expanded from 2 years to 5 to 15 years.

So far, there is a lack of monetarily quantified information regarding climate change impacts.

Fragmented national legislation is one of the hurdles for comparable reporting.

Policy and market scenarios with transparent premises and methods would be the best mean to improve the information value of annual reports/management commentaries for investors.



Mainstreaming of Climate Risks and Opportunities in the Financial Sector

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